

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed September 4, 2009. Reconsideration and allowance of the application and pending claims are respectfully requested.

I. Drawings Objections

The drawings have been objected to for not matching the written description. In response to the objections, Applicant has amended Figure 2 and the written description so that they match. In view of those amendments, the drawings are not believed to be objectionable.

II. Double Patenting Rejections - Obviousness-type Double Patenting

Claims 11, 16, 17, and 20-30 have been rejected under the doctrine of obviousness-type double patenting as being unpatentable in view of claims 24-26, 28, 29, 32, 33, and 39 of U.S. Serial No. 11/596,607 ("the '607 application").

Because the rejection is provisional, and because the claims of both the instant application and the '607 application may change through prosecution, Applicant declines to act on the rejection at this time. Applicant will, however, consider filing a terminal disclaimer upon issuance of the '607, should such a terminal disclaimer be deemed necessary.

III. Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claims 11 and 13 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. In response, Applicant amended each of these claims to remove any perceived indefiniteness. It is respectfully submitted that the claims define the invention in the manner required by 35 U.S.C. § 112.

IV. Claim Rejections - 35 U.S.C. § 102(b)/103(a)

Claims 11, 14, 18-20, and 24-26 have been rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as being unpatentable over *Fonash, et al.* ("Fonash," U.S. Pub. No. 2002/0020053).

As an initial matter, Applicant respectfully objects to the statement of the rejections as being improperly vague. Specifically, it was alleged that Fonash teaches various components of Applicant's claims, but the Office Action failed to explicitly identify which components of the Fonash disclosure are believed to be equivalent to Applicant's claimed components. For example, it was alleged that Fonash teaches "anode current collectors" in Figure 9b, but the Office Action did not explicitly indicate what components in that figure are believed to comprise those anode current collectors. Furthermore, it was noted in the Office Action that Fonash teaches an "anode electrode" that comprises a catalyst, but it was not explained whether that electrode is believed to account for Applicant's claimed "catalyst layer" or the separately claimed "cathode current collector". Applicant requests that, if the Examiner will reject Applicant's claims again, the Examiner specifically and explicitly identify each component of the prior art that is believed to

account for each individual component of Applicant's claims. If the components of the prior art are not explicitly identified by reference numerals, Applicant requests that the Examiner reproduce prior art figures and label the figures so that Applicant can determine the basis for the rejections.

Turning to the merits of the claims, claim 11, which is generally illustrative of Applicant's claims, provides as follows:

11. A micro-fuel cell, comprising:
 - a substrate having a top surface;
 - anode current collectors disposed on the top surface of the substrate;
 - a membrane provided above the top surface of the substrate and contacting the anode current collector;
 - hollow channels that are positioned above the top surface of the substrate and that pass through the membrane, each channel being defined by the top surface of the substrate and inner surfaces of the membrane;
 - a first porous catalyst layer disposed on the inner surfaces of the membrane; and
 - a cathode current collector provided above the membrane and being in electrical communication with the first porous catalyst layer.

Applicant notes that Fonash fails to disclose or suggest each and every limitation of claim 11. For example, Fonash does not disclose or suggest "hollow channels that are positioned above the top surface of the substrate and that pass through the membrane, each channel being defined by the top surface of the substrate and inner surfaces of the membrane". First, Fonash's channels are not positioned "above the top surface of

the substrate”. Instead, Fonash’s channels are positioned *within* Fonash’s substrate (see Figures 9a and 9b). Second, Fonash’s channels do not “pass through the membrane”. Instead, Fonash’s channels pass *below the membrane (electrolyte) and through the substrate* (see Figures 9a and 9b). For at least those reasons, Fonash does not anticipate or render obvious claim 1 or its dependents.

Applicant notes that independent claims 20 and 26, and their dependents, are allowable over Fonash for similar reasons. In both claims 20 and 26, Applicant recites hollow channels that are positioned above the top surface of the substrate and that pass through the membrane. In addition, Applicant notes that Fonash does not disclose or suggest disposing a “sacrificial polymer material” on the substrate and removing “sacrificial polymer material portions” to form the channels. In the Fonash disclosure, the channels are formed by removing substrate material (e.g., silicon). See *Fonash*, paragraph 0147.

V. Claim Rejections - 35 U.S.C. § 103(a)

A. Rejection of Claims 12, 13, 15, 21, 27, and 28

Claims 12, 13, 15, 21, 27, and 28 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fonash* as applied to claims 11, 14, 18-20, and 24-26.

As identified above, Fonash does not teach aspects of Applicant’s claims. Applicant respectfully submits that claims 12, 13, 15, 21, 27, and 28 are allowable over the Fonash reference for at least the same reasons that claims 1, 20, and 26 are allowable over Fonash.

B. Rejection of Claims 16, 17, 22, 23, 29, and 30

Claims 16, 17, 22, 23, 29, and 30 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Fonash* as applied to claims 11-15, 18-21, and 24-28, in view of *Ha, et al.* ("Ha," U.S. Pub. No. 2004/0241520).

As identified above, *Fonash* does not teach aspects of Applicant's claims. In that *Ha* does not remedy the deficiencies of the *Fonash* reference, Applicant respectfully submits that claims 16, 17, 22, 23, 29, and 30 are allowable over the *Fonash*/*Ha* combination for at least the same reasons that claims 1, 20, and 26 are allowable over *Fonash*.

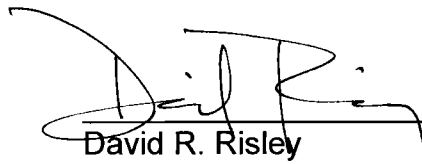
VI. Canceled Claims

Claims 12 and 14 have been canceled from the application without prejudice, waiver, or disclaimer. Applicant reserves the right to present these canceled claims, or variants thereof, in continuing applications to be filed subsequently.

CONCLUSION

Applicant respectfully submits that Applicant's pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



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